UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/655,345	09/04/2003	C. Steven McDaniel	5842-00601	6570

62754 7590 12/14/2010

DAFFER MCDANIEL, LLP
P.O. BOX 684908
AUSTIN, TX 78768-4908

EXAMINER	
SWOPE, SHERIDAN	
ART UNIT	PAPER NUMBER
1652	

MAIL DATE	DELIVERY MODE
12/14/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/655,345	MCDANIEL, C. STEVEN	
	Examiner	Art Unit	
	SHERIDAN SWOPE	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) *See Continuation Sheet* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 15-27, 67, 72-75, 79-89, 94-100, 102, 110-112, 115-117, 123-135, 180-182, 217, 219-242, 251-255, 272, 323, 324, 326, 327, 343-356, 360-362, 365-373, 376, 377, 379-385, 389-391, 393, and 394* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1210*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,15-28,31-35,37-52,55-63,67,69-75,79-108,110-112,115-117,123-256,272,319-362,365-373,376,377,379-391,393 and 394.
Continuation of Disposition of Claims: Claims withdrawn from consideration are 28,31-35,37-52,55-63,69-71,90-93,101,103-108,136-179,183-216,218,243-250,256,319-322,325,328-342,357-359 and 386-388.

DETAILED ACTION

Applicant's filing of August 23, 2010, in response to the action of February 19, 2010, is acknowledged. The currently elected invention is directed to an aqueous paint comprising an organophosphorus hydrolase that is a Flavobacterium sp opd gene product comprising a Co2+ ion, wherein the paint comprises a thermoplastic binder, a filler and a bactericide preservative, and the paint forms a film under ambient conditions, and wherein the paint does not have additional inorganic compounds, organic compounds, or a plasticizer.

Based on the amendment of August 23, 2010, Claims 2-14, 29, 30, 36, 53, 54, 64-66, 68, 76-78, 109, 113, 114, 118-122, 257-271, 273-318, 363, 364, 374, 375, 378, and 392 stand cancelled and Claims 1, 115, 117, 272, 319, 320, 368-373, 376, 377, 379-391, 393, and 394 are amended. No new claims have been added. Claims 1, 15-28, 31-35, 37-52, 55-63, 67, 69-75, 79-108, 110-112, 115-117, 123-256, 272, 319-362, 365-373, and 376, 377, 379-391, 393, and 394 are pending. Claims 28, 31-35, 37-52, 55-63, 69-71, 90-93, 101, 103-108, 136-179, 183-216, 218, 243-250, 256, 322, 325, 328-342, 357-359, and 386-388 were previously withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions. Claims 319-321 are herein withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions. Claims 1, 15-27, 67, 72-75, 79-89, 94-100, 102, 110-112, 115-117, 123-135, 180-182, 217, 219-242, 251-255, 272, 323, 324, 326, 327, 343-356, 360-362, 365-373, 376, 377, 379-385, 389-391, 393, and 394 are hereby reexamined.

Priority

The priority date for the currently examined claims is September 9, 2002.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Double Patenting

> The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).
>
> A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b). Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).
>
> An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim not is patentably distinct from the reference claim(s) because the examined claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985).

Provisional rejection of Claims 1, 15-27, 67, 72-75, 79-89, 94-100, 102, 110-112, 115-117, 123-135, 180-182, 217, 219-242, 251-255, 272, 323, 324, 326, 327, 343-356, 360-362, 365-373, 376, 377, 379-385, 389-391, 393, and 394 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-109 of US Application 12/474,921, for reasons set forth in the prior action, is maintained. In support of their request that said rejection be withdrawn, Applicants provide the following arguments. These arguments are not found to be persuasive for the reasons following each argument.

(A) The Examiner is neglecting to acknowledge limitations in claims 1-109 of the '921 application which are not recited in the claims of the captioned case (e.g., the inclusion of an antibiological peptidic agent in the claimed compositions).

(A) Reply: Recitation of an antibiological peptidic agent in the claims of '921 is in the alternative, i.e., "or". Thus, the claims of '921 do not require the paint to comprise an antibiological peptidic agent.

(B) The Examiner surmises on pages 3 and 4 of the Office Action that "The portion of the specification in [the '921 application] that supports the recited coatings include embodiments that would anticipate [claims of the captioned case] ...". Such conjecture is traversed, specifically in that the "921 application is not prior art to the captioned application and, thus, cannot anticipate the claims of the captioned application. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). (MPEP 2131) (underline added for emphasis).

(B) Reply: Since Applicants have not pointed out which elements of the claims herein are missing from the claims of '921, the Office cannot make a substantive reply.

(C) The Examiner further states on page 4 of the Office Action, "Altenatively, [claims of the captioned case] cannot be considered patentably distinct over claims 1-109 of [the "921 application] when, there are specifically disclosed embodiments in [the '921 application] that support claims 1-109 of that application and fall within the scope of [claims of the captioned case] because it would have been obvious to a skilled artisan to modify the coatings of claims 1-109 of [the '921 application] by selecting specifically disclosed embodiments that support those

claims ...". This statement is not clear to the Applicant. Clarification is requested. In particular, it is not clear how the supposition of one skilled in the art to modify the coatings of claims 1-109 based on the disclosure of the '921 application has anything to do with the claims of the captioned case.

(C) Reply: Claims 1-109 of the '921 application encompass a paint (Claim 28) comprising a phosphoric triester hydrolase EC 3.1.8 enzyme (Claim 3). Thus, Claims 1-109 of the '921 application encompass the subject matter of the claims herein. Since both a paint and a EC 3.1.8 enzyme are specifically recited embodiments in the claims of '921, it would have been obvious to a skilled artisan to modify the coatings of Claims 1-109 of '921 to select said specifically recited embodiments. See MPEP 804.

Claim Rejections - 35 USC § 112-Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Rejection of Claims 21-27 under 35 U.S.C. 112, second paragraph, because the phrases "functional equivalent", "structural analog", and "sequence analog" render the claims indefinite, as described in the prior action, is maintained. In support of their request that said rejection be withdrawn, Applicants provide the following arguments. These arguments are not found to be persuasive for the reasons following each argument.

(A) The second paragraph of 35 U.S.C. 112 is directed to-two separate requirements for, the claims: (A) the claims must set forth the subject matter that applicants, regard as their invention and (B) the claims must particularly point out and distinctly define the metes and

bounds of the subject matter that will be protected by the patent grant, (which refers to 'definiteness' of the claims) (see,'MPEP 2171).

(i) With respect to "Requirement A", the Applicant notes the following case law and patent examination guidelines cited in MPEP 2172:

> The invention set forth in the claims must be presumed, in the absence of evidence to the contrary, to be that which applicants regard as their invention. In re Moore, 439 F.2d 1232, 169 USPQ 236 (CCPA 1971).
>
> Evidence that shows that a claim does not correspond in scope with that which applicant regards as applicant's invention may be found, for example, in contentions or admissions contained in briefs or remarks filed by applicant, Solomon v. Kimberly-Clark Corp., 216 F.3d 1372, 55 USPQ2d 1279 (Fed. Cir. 2000); In re Prater, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969), or in affidavits filed under 37CFR 1.132, In re Cormany, 476 F.2d 998, 177 USPQ 450 (CCPA 1973). The content of applicant's specification is not used as evidence that the scope of the claims is inconsistent with the subject matter which applicants regard as their invention.

Applicant is not aware of any contentions or admissions contained in remarks filed by himself or in affidavits filed under 37 CFR 1.132 which would render the subject matter recited in claims 21-27 to not correspond in scope with that which is regarded as the invention. If the Examiner disagrees, citation of such contentions or admissions is requested to support this basis of rejection for claim 21-27. If not, it is asserted that claims 21-27 meet "Requirement A" of the second paragraph of 35 U.S.C. 112.

(A) Reply: It is acknowledged that 35 U.S.C. 112, second paragraph, states:

> "The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."

(i) Reply: Regarding In re Moore, it is acknowledged that that, in the absence of evidence to the contrary, the invention set forth in the claims must be presumed to be that which applicants regard as their invention. However, for the reasons set forth herein and in the prior

action, neither the claims not the specification distinctly disclose the subject matter which applicant regards as the invention.

Regarding Solomon v. Kimberly-Clark Corp, In re Prater, and In re Cormany, said cases are not relevant to the instant application. The Examiner acknowledges being unaware of remarks that would render the recited subject matter as not corresponding in scope with that which applicants regarded as the invention. However, such remarks are not required for the instant rejection because, in fact, Applicants have not clearly disclosed what is regarded as the invention for the phrases "functional equivalent", "structural analog", and "sequence analog".

(ii) With respect to "Requirement B" of the second paragraph of 35 U.S.C. 112, the Applicant notes the following case law and patent examination guidelines cited in MPEP 2173.02:

> The essential question under 35: U.S.C. 112, second paragraph, is whether the claims do, in fact, set out and circumscribe a particular area with a reasonable degree of precision and particularity. Definiteness of claim language is analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. In re Moore, 439 F.2d 1232, 169 USPQ 236 (CCPA 1971).

> The test for definiteness under 35 U.S.C. 112, second paragraph, is whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification." Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Cir. 1986)

(ii) Reply: It is acknowledged that MPEP 2173.02 so states. However, for the reasons set forth herein and in the prior action, neither the claims not the specification distinctly disclose, even in light of the prior art and knowledge of the skilled artisan, the subject matter which applicant regards as the invention for the phrases "functional equivalent", "structural analog", and "sequence analog".

(B) The Examiner acknowledges the phrase 'functional equivalent to the wild-type enzyme' is defined in paragraph [0121] of the specification as a proteinaceous molecule comprising a sequence and/or a structural analog of a wild-type enzyme's sequence and/or structure and functions as an enzyme. In addition, the Examiner acknowledges paragraph [0169] of the specification defines the term 'structural analog' as one or more chemical modifications to the peptide backbone or non-side chain chemical moieties of a proteinaceous molecule and defines the term 'sequence analog' as one or more chemical modifications to the side chain chemical moieties, which is also referred to as a residue of one or more amino acid proteinaceous molecule's sequence.

(B) Reply: The Examiner did not acknowledge that the specification clearly defines the phrases "functional equivalent", "structural analog", and "sequence analog". The prior action (pg 5-6) merely restated what is disclosed in the specification (PGPub [0212][0169]) and set forth arguments as to why said disclosures do not define the metes and bounds of the phrases "functional equivalent", "structural analog", and "sequence analog".

(C) In addition to providing clear definitions to the terms "sequence analog" and "structure analog", paragraph [0169] of the specification provides examples of chemical modifications which may constitute the terms. Likewise, paragraph [0121] provides examples of functional equivalents of a wild-type enzyme as well as examples of enzymatic properties which a functional equivalent enzyme may possess. With respect to the examples of enzymatic properties, the specification utilizes the term "similar" and phrases "desired properties", "undesired properties", and "desired chemical reactions". The Examiner notes the phrases are undefined and the disclosure of the examples and the term "similar" are indefinite (see page 6 of

the Office Action). It appears the Examiner believes such indefiniteness renders the terms 'functional equivalent', 'structural analog', and 'sequence analog' indefinite. Such a line of reasoning is traversed.

In particular, it is asserted that those of skill in the art of biotechnology are aware and readily recognize what properties may be desirable and undesirable, for an enzyme as well as what chemical reactions of an enzyme may be desirable to catalyze and such desirabilities/ undesirabilities will generally depend on the application in which the enzyme is used. Furthermore, it is asserted that one skilled in the art of biotechnology would be apprised of the scope of "similar enzymatic properties". Thus, one skilled in the art of biotechnology would be apprised with a reasonable degree of precision and particularity what the terms "similar", "desired properties", "undesired properties", and "desired chemical reactions" refer to for an enzyme. Consequently, the fact that such terms are not defined in the specification does not render the phrases "functional equivalent", "structural analog", and "sequence analog" indefinite. A patent specification need not teach, and preferably omits, what is well known in the art. Hybritech Inc. v. MonoclonalAntibodies, Inc., 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986).

(C) Reply: It is acknowledged that, lacking further definition of the metes and bounds, the term "similar" and phrases "desired properties", "undesired properties", and "desired chemical reactions" are indefinite.

The test for definiteness under 35 U.S.C. 112, second paragraph, is whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification." Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088

(Fed. Cir. 1986). In the instant case, for example for the phrase "functional equivalent", it is unclear whether said phrase means a protein that, compared to a specific reference protein (i) has the exact same substrate specificity, (ii) catalyzes the exact same reaction, (iii) has the same Vmax, (iv) has the same Kcat, (v) has the same immunogenicity, (vi) has the same modulators, (vii) has the same binding partners, (viii) is in the same signal transduction pathway(s), (ix) can complement loss of the specific reference protein, (x) mutation of causes the same cellular effect, (xi) has all of (i)-(x), or (xii) has some combination of (i)-(x).

The Examiner fails to find in the specification any specific examples of proteins that are 'functional equivalents', 'structural analogs', or 'sequence analogs'.

(D) (i) Moreover, the fact the examples disclosed in specification regarding the terms "functional equivalent", "structural analog", and "sequence analog" do not encompass every possible consideration for the terms does not render the terms indefinite. In particular, it is asserted that those skilled in the art of biotechnology would readily recognize that the examples provided in the specification are offered to support the definitions set forth for the terms, but in no way serve an exhaustive list of possibilities encompassed by the terms. (ii) The terms and phrases "example", "such as" and "may possess" used in such descriptions of the specification acerbate this assertion as a skilled artisan in any scientific field recognizes that examples are not definitive, the term "such as" refers to examples, and the use of the term "may" does not constitute a necessity.

(D) Reply: Applicants arguments (i) and (ii) are contradictory. (i) Argues that the skilled artisan, given a few examples, would understand the metes and bounds of the invention. (ii) Argues that examples are not definitive. It is acknowledged that examples are not definitive.

(E) The aforementioned assertions are substantiated by in a declaration by Dr. Melinda E. Wales, Ph.D. under 37 C.F.R. § 1.132 filed in conjunction with this response. In particular, Dr. Melinda E. Wales, a person of skill in the art of biotechnology, declares that one skilled in the art of biotechnology would be apprised of the scope of the terms "functional equivalent", "structural analog", and "sequence analog" for claims 21-27 with a reasonable degree of precision and particularity based on the description of such terms provided in the specification and what is readily known in the art regarding E.C. 3.1.8 enzymes.

(E) Reply: Regarding the instant rejection, points 9-13 of the declaration by Dr. Melinda E. Wales, Ph.D., set forth the same arguments, (A)-(D) above. These arguments are not found to be persuasive for the reasons set forth above.

Point 14 of the declaration provides an argument not provide by Applicants. Point 14 argues the following.

> EC 3.1.8 defines functional equivalence to be limited to hydrolysis of phosphoric triesters. Within this functional context, the terms "functional equivalent", "structural analog", and "sequence analog" used in claims 21-27 refer to a progressively more discreet grouping of enzymes which share a function limited to EC 3.1.8 (i.e., phosphoric triester hydrolases). This functional class of enzymes is informed by dependent claims 17, 19 and 21 can be easily defined by academic literature over the past 20 years, and is further, limited by the structural, and sequence attributes as exemplified in dependent claim 21. There is sequence divergence represented in EC 3.1.8, but the enzymes of claim 21 exemplify, a specific class of. EC.3.1.8 of limited sequence divergence.

(E) Reply: It is acknowledged that EC 3.1.8 encompasses phosphoric triester hydrolases, including EC 3.1.8.1, aryldialkylphosphatases, and EC 3.1.8.2, diisopropyl-fluorophosphatases. However, Claims 21-27 fail to use the term EC 3.1.8. Even if Claims 21-27 recited equivalents of EC 3.1.8 enzymes, which the claims do not, EC 3.1.8 enzymes is a large and variable family of enzymes with a large number of variable substrates and the potentiality of

being involved in many different cellular processes and diseases. Neither the specification nor the claims define the metes and bounds of functional equivalents of EC 3.1.8 enzymes.

Also see (A)-(D) above and the prior actions.

Any subsequent rejection based, on clarification of the above phrases and terms, will not be considered a new ground for rejection.

Claim Rejections - 35 USC § 112-First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Enablement

Rejection of Claims 1, 15-27, 67, 72-75, 79-89, 94-100, 102, 110-112, 115-117, 123-135, 180-182, 217, 219-242, 251-255, 272, 323, 324, 326, 327, 343-356, 360-362, 365-373, 376, 377, 379-385, 389-391, 393, and 394 under 35 U.S.C. 112, first paragraph/enablement, for reasons explained in the prior actions, is maintained.

In support of their request that said rejection be withdrawn, Applicants provide the following arguments. These arguments are not found to be persuasive for the reasons following each argument.

(A) The specification clearly and sufficiently describes the manner of making and using coatings, elastomers, adhesives, sealants, and waxes including any active enzyme of E.C. 3.1.8 (see, e.g., ¶¶ 0321-0450, 0490, 0560-0570, 0574-0584, 0622-0635, and 0647-0664).

The specification clearly sets forth how to make coatings, elastomers, adhesives, sealants, and waxes comprising enzymes with any known components for imparting desired properties for

coatings, elastomers, adhesives, sealants, and waxes, such as but not limited to binders, fillers, and preservatives, for example (see, e.g., ¶¶ 0293, 0302, 0309, 0310, 0313, 0316, 0377, 0391, 0396, 0400, 0415, 427, 0439 and 0565) wherein the enzyme may be any active enzyme of E.C. 3.1.8 (see, e.g., ¶¶ 0129-0153, 0168-0191, 0202, 0205, 0213, 0215, 0216, 0226, 0236, 0237, 0239, 0240, 0676, 0688, and 0718). Moreover, the specification teaches how to use said compositions (see, e.g., ¶ 0084).

(A) Reply: It is acknowledged that the specification (¶¶ 0321-0450, 0490, 0560-0570, 0574-0584, 0622-0635, and 0647-0664 and ¶¶ 0293, 0302, 0309, 0310, 0313, 0316, 0377, 0391, 0396, 0400, 0415, 427, 0439 and 0565), describes a variety of coatings, elastomers, adhesives, sealants, and waxes as well as components thereof and manufacturers thereof. The specification (¶¶ 0129-0134, 153, 0168-180, 0213, 0215, 0216, 0226, 0236, 0237, 0239, 0240, 0676, 0688, and 0718) does not discuss enzymes of E.C. 3.1.8. It is acknowledged that the specification (¶¶ 0134-152, 0181-191, 0202, and 0205) describes enzymes of E.C. 3.1.8. However, none of said paragraphs teach the skilled artisan how to make and use a paint comprising an active enzyme of E.C. 3.1.8. Mere disclosure of (i) a laundry list of coatings, elastomers, adhesives, sealants, and waxes as well as components thereof and manufacturers thereof and (ii) a laundry list of enzymes of E.C. 3.1.8 does not enable the skilled artisan to make an use any paint comprising any enzyme of E.C. 3.1.8, wherein the enzyme has any structure and any E.C. 3.1.8 esterase activity. None of the claims under consideration recite elastomers, adhesives, sealants, or waxes. Also, see the action of February 19, 2010 (pgs 8-10).

(B) As noted in the communications filed August 27, 2008 and September 28, 2009, the specification also clearly sets forth how to analyze and test (i) coatings, elastomers, adhesives,

sealants, and waxes for suitable properties as well as (ii) the activity of enzymes formulated therewith.

(B) Reply: See the action of February 19, 2010 (pg 12, Reply (C) and pg 12-13, Reply (E)).

(C) One skilled in the art of coatings and the material sciences of elastomers, adhesives, sealants, and waxes would be able to establish a rational and predictable scheme for identifying components of coatings, elastomers, adhesives, sealants, and waxes which allow and those which inhibit an E.C. 3.1.8 enzyme's activity. Conducting such analyses would not require undue experimentation since such actions are routinely performed in the art for components in such classes of materials.

(C) Reply: It is acknowledged that a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed. In the instant case, the claims encompass paints comprising an essentially unlimited number of possible components and further comprising any protein having any structure and having any function of any E.C. 3.1.8 enzyme. The making and testing of all said paints clearly represents undue experimentation. None of the claims under consideration recite elastomers, adhesives, sealants, or waxes. Also, see the action of February 19, 2010 (pg 14-15, Reply (H).

(D) The aforementioned assertions of (A)-(C) are substantiated by in declarations by Dr. Melinda E. Wales, Ph.D. and/or Dr. James W. Rawlins under 37 C.F.R. § 1.132 filed in conjunction with this response. In particular, Dr. Melinda E. Wales, a person of skill in the art ofbiotechnology, and Dr. James W. Rawlins, a person of skill in the art of coatings and polymer

science, declare the specification clearly and sufficiently describes the manner of making and using coatings, elastomers,.adhesives,-sealants, and waxes including any active enzyme of E.C. 3.1.8.

(D) Reply: The declaration by Dr. Melinda E. Wales, Ph.D. is acknowledged.

Regarding the instant rejection, points 20, 22, 24, 25 of the declaration by Dr. Melinda E. Wales, Ph.D., set forth the same arguments as (A)-(C) above. These arguments are not found to be persuasive for the reasons set forth above.

Points 21 and 23 of the declaration provides an argument not provide by Applicants. Points 21 and 23 argue the following.

> 21. Those of skill in the art of biotechnology are aware and readily recognize that an active enzyme of E.C. 3.1.8 maybe derived by techniques which are known in the art. In particular, directed or molecular evolution (also called evolutive biotechnology) involves either random mutagenesis of the gene encoding the catalyst (e.g. by error-prone PCR) or recombination of gene fragments (e.g. derived from DNase degradation, a staggered extension process or random priming recombination). Libraries created in this manner are then screened using high-throughput technologies to identify active analogs. To achieve this, the gene(s) encoding the enzyme(s) of interest (such as those identified by reference to EC 3.1.8 known and available to those in the art), a suitable expression system, and a sensitive assay for the desired function, such as that described in the specification of the '345 application, is used.
>
> 23. I believe one skilled in the art would be able to ascertain the tolerance of enzymes identified to be active in coatings, elastomers, adhesives, sealants, and waxes regarding modification and extent of the tolerance. In addition, I believe one skilled in the art of biotechnology would be able to ascertain the regions of any enzymes which mayor may not be modified without affecting enzyme activity within a coating, elastomer, adhesive, sealant, or wax. Based on such, I believe one: skilled in the: art would be able to establish a rational and predictable scheme for identifying or making a genus of EC 3.1.8 enzymes having activity within a coating, elastomer, adhesive, sealant, or wax.
>
> In particular, the limitation of enzymes of interest to EC 3.1.8 in independent claims 1, 272, 368, 393 and 394 specifically identifies aryl esters and organophosphate compounds as the functional target. These substrates have no apparent physiological significance, and so qualify as "promiscuous substrates". Gene or amino acid sequences attributed to ancillary or promiscuous activities are documented to be more plastic than those associated with essential functions, such as those described by Gayle and Whisstock. Directed laboratory evolution experiments, including those reported for sequences derived from the EC 3.1.8 class, demonstrate this plasticity. As such, I find the citation of Gayle and Whisstock and the accompanying assertion by the Examiner on page 9 of the office action, in part, not applicable to the subject matter recited in independent claims 1, 272, 368, 393 and 394. In particular, as one skilled in the art, I believe results of modifications to an EC 3.1.8 enzyme can be readily and easily screened to identify active variants. Furthermore, I disagree with the Examiner's

overly vague assertion on page 9 of the office action that the tolerance of modification for any given protein diminishes with each additional modification. In particular, I am aware of eighteen different cases that have been published in the art of biotechnology in which one to four mutations increased the promiscuous activity of proteins, but hardly affected the original activity of these proteins.

Reply: Guo et al, 2004 teaches that the percentage of random single-substitution mutations, which inactivate a protein, using a protein 3-methyladenine DNA glycosylase as a model, is 34% and that this number is consistent with other studies in other proteins (pg 9206, parg 4). Guo et al further show that the percentage of active mutants for multiple mutations appears to be exponentially related to this by the simple formula $(0.66)^X$ x 100% where X is the number of mutations introduced (Table 1). Applying this estimate to the 325 amino acid phosphotriesterase taught by McDaniel et al, 1988 (M20392), 80% identity allows up to 65 substiutiona and, thus, only $(0.66)^{65}$ x 100% or 1.8 x 10^{-10}% of random mutants having 80% identity would be active. Similarly, at 70% identity only 2.1 x 10^{-16}% would be active. Some techniques in the art, i.e., high throughput mutagenesis and screening techniques, would allow for finding a few active mutants within several hundred thousand or up to about a million inactive mutants, despite even this being an enormous quantity of experimentation that would take a very long time to accomplish. However, finding a few mutants within several billion or more, as in the genus of 70% identity, would not be possible. Moreover, the instant claims are not limited to the genus of proteins having 70% identity to the phosphotriesterase taught by McDaniel et al. The instant claims encompass any protein having any structure and having any activity of an E.C. 3.1.8 enzyme* in any paint comprising any components. While enablement is not precluded by the necessity for routine screening, if a large amount of screening is required, the specification must provide a reasonable amount of guidance with respect to the direction in

which the experimentation should proceed. Such guidance has **not** been provided in the instant specification.

*The Examiner fails to see that claims 1, 272, 368, 393 and 394 identifies any specific compounds as the functional target.

The declaration by Dr. James W. Rawlins is acknowledged.

Regarding the instant rejection, points 12-14 of the declaration by Dr. James W. Rawlins set forth the same arguments as (A)-(C) above or points 21 and 23 of the declaration by Dr. Melinda E. Wales, Ph.D.. These arguments are not found to be persuasive for the reasons set forth above.

Point 15 of the declaration by Dr. James W. Rawlins provides an argument not provided by Applicants or Dr. Melinda E. Wales, as follows.

> 15. The aforementioned statements are substantiated by the fact that I have made a wide variety of coating compositions (i.e., different types of coatings as well as coatings of varying components) having an E.C. 3.1.8 enzyme incorporated therein based on information disclosed in the '345 application. In particular, I did not need to look for guidance beyond what is disclosed in the '345 application for making, analyzing or using the coating compositions I made.

Reply: Since Dr. Rawlins provides no details or evidence as to the coatings made, components thereof, or enzymes used, the Office cannot evaluate or consider such evidence.

For these reasons and those explained in the prior actions, rejection of Claims 1, 15-27, 67, 72-75, 79-89, 94-100, 102, 110-112, 115-117, 123-135, 180-182, 217, 219-242, 251-255, 272, 323, 324, 326, 327, 343-356, 360-362, 365-373, 376, 377, 379-385, 389-391, 393, and 394 under 35 U.S.C. 112, first paragraph/enablement, is maintained.

Written Description

Rejection of Claims 1, 15-27, 67, 72-75, 79-89, 94-100, 102, 110-112, 115-117, 123-135, 180-182, 217, 219-242, 251-255, 272, 323, 324, 326, 327, 343-356, 360-362, 365-373, 376, 377,

379-385, 389-391, 393, and 394 under 35 U.S.C. 112, first paragraph/written description, for reasons explained in the prior actions is maintained.

Neither Applicants nor the declarations by Dr. Melinda E. Wales, Ph.D. or Dr. James W. Rawlins provide specific arguments regarding this rejection.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 15-20, 67, 72, 74, 75, 79-89, 94-100, 102, 110-112, 115-117, 123-135, 180-182, 217, 219-223, 234-238, 251-255, 272, 320, 343, 344, 351, 352, 354-356, 360-362, 365-367-373, 376, 377, 379-385, 389-391, 393, and 394 are rejected under 35 U.S.C. 102(b) as being anticipated by Bonaventura et al, 1999, as evidenced by W. R. Grace & Co, as explained in the prior action, is maintained.

In support of their request that said rejection be withdrawn, Applicants provide the following arguments. These arguments are not found to be persuasive for the reasons following each argument.

(A) Bonaventura does not teach or suggest an architectural coating, an automotive coating, a can coating, a chemical, agent resistant coating (CARC), a camouflage coating, a traffic marker coating, or an aircraft coating, as recited in Claim 1.

(A) Reply: Bonaventura et al teaches that their paints are useful for:

The method of the present invention and the surfaces produced according to the method are useful in all types of aquatic environments, including sea-water, estuary, and fresh water environments. In addition to natural environments (i.e., those which are in free contact with and freely exchange material with other parts of the biosphere without human intervention), the term "aquatic environments" as used herein also includes **cooling towers, fresh and salt water piping systems, desalination and other filtration systems** containing membrane "surfaces" subject to protection, and **other aquatic environments which rely upon the intervention of human beings for their creation and maintenance**. (¶bridg col 5-6; Examiner's emphasis)

The skilled artisan would understand that said paints encompass, at least, architectural paints.

(B) The evaluation of whether Bonaventura anticipates independent claims 1, 272, 368, 393 and 394 is not whether the coating compositions taught in Bonaventura may be used for the intended use reflected in the coating terms recited in the claims, but is whether the coating compositions taught in Bonaventura match the structural limitations of the coating terms recited in said claims. The coatings recited in said independent claims are compositionally distinct from the coatings taught in Bonaventura; Bonaventura fails to anticipate the claims.

(B) Reply: Claims 1, 272, 368, 393 and 394 fail to recite any structural limitations for the encompassed paints or components therein.

The currently elected invention is directed to an aqueous paint comprising an organophosphorus hydrolase that is a Flavobacterium sp opd gene product comprising a Co2+ ion, wherein the paint comprises a thermoplastic binder, a filler and a bactericide preservative, and the paint forms a film under ambient conditions, and wherein the paint does not have additional inorganic compounds, organic compounds, or a plasticizer. Although encompassed, none of independent Claims 1, 272, 368, 393 and 394 specifically recite an aqueous paint comprising an organophosphorus hydrolase that is a Flavobacterium sp opd gene product comprising a Co2+ ion, wherein the paint comprises a thermoplastic binder, a filler and a bactericide preservative, and the paint forms a film under ambient conditions, and wherein the paint does not have additional inorganic compounds, organic compounds, or a plasticizer.

As explained in the Action of February 19, 2010:

"Bonaventura et al teaches latex and oil-based paints comprising an isolated active E.C. 3.1.8 Flavobacterium enzyme that cleaves parathion (Example V), i.e., an aryldialkylphosphatase/ organophosphorus hydrolase of E.C. 3.1.8.1. The paints of Bonaventura et al comprise polyurethane hydrogel, which has a thermoplastic binder, silica microspheres, and an anti-foamer (Grace, Inc). The skilled artisan would believe that, more likely than not, the paints of Bonaventura et al comprise a pigment and have some chalking that is self-cleaning. The paints of Bonaventura et al are initially multi-pack, with the polyurethane in a separate pack from the water- or solvent-based coating."

Thus, Bonaventura et al teaches the limitations encompassed by Claims 1, 15-20, 67, 72, 74, 75, 79-89, 94-100, 102, 110-112, 115-117, 123-135, 180-182, 217, 219-223, 234-238, 251-255, 272, 320, 343, 344, 351, 352, 354-356, 360-362, 365-367-373, 376, 377, 379-385, 389-391, 393, and 394. Since Bonaventura et al teaches the elected subject matter, Applicants' statement that Bonaventura et al does not teach the paints encompassed by Claims 1, 272, 368, 393 and 394, implicitly argues that Claims 1, 272, 368, 393 and 394 do not encompass the elected subject matter. Clarification is required.

(C) Those of ordinary skill in the art of polymer chemistry would understand that coatings are designed with the "end in mind". Although the specific-coatings recited in claims 1, 272, 368, 393 and 394 are recited in a manner of their intended application. The use denoted in the coating terms dictates the necessary performance which in turn becomes a critical requirement for method of application, specific coating composition and ultimate performance. Different types of coatings are compositionally distinct from each other.

(C) Reply: It is acknowledged that skilled artisan would understand that some paints, e.g., wood paints, masonry paints, artist paints have some distinct functional characteristics/requirements. However, as is known in the art, paint formulations are being continuously developed and improved upon (Rawlings et al, 2009; declaration of Dr. James W. Rawlins). Thus, recitation of use for a paint does not define the structural or functional characteristics of all components that may be found, or not found, in a paint for the recited use.

(D) Bonaventura does not teach or suggest an elastomer, adhesive, a sealant or a wax having an E.C. 3.1.8 enzyme, as recited in claim 319.

(D) Reply: Amended Claims 319-321 have been withdrawn as reciting non-elected subject matter.

(E) The citation of WR Grace as evidence to the teachings Bonaventura is not clear. Clarification is requested. Nonetheless, Applicant has attempted to reply to the use of WR Grace as evidence to the teachings Bonaventura. Applicant presumes use of WR Grace is to show that a characteristic not disclosed in Bonaventura is inherent.

Bonaventura teaches incorporating the enzymes described therein within an immobilization matrix made from a hydrophilic polyurethane prepolymer, such as supplied by Grace Chemical Co., prior to being mixed with a coating such that the enzymes can maintain their activity in the coating. Bonaventura teaches the use of two classes of polyurethane prepolymers: foam-forming prepolymers and gel-forming prepolymers, the latter of which WR Grace refers to as a hydrogel (Bonaventura; col13, lines 19-37, col 19, lines 1-13; col 34, lines 53-61). Based on such teachings of Bonaventura, and what appears to be the sole statement regarding the teachings of WR Grace in the Office Action, the Applicant presumes the Examiner deems WR Grace as teaching a polyurethane hydrogel having a thermoplastic binder, silica microspheres, and an antifoamer and deems such components are inherent components of the coating described in Bonaventura. If the Applicant is incorrect in his presumption, clarification is requested as to the basis of the citation of WR Grace.

WR Grace provides a description of microporous silica gel particles, including micronized porous silica hydrogels. There is no other description of hydrogels in WR Grace.

Based on the teachings of WR Grace, the Applicant concurs silica materials [as] an inherent component of the coatings described in Bonaventura when a hydrophilic polyurethane gel forming prepolymer is used to form an immobilization matrix added to the coatings. However, there is no basis in WR Grace that such coatings or any other coatings described in Bonaventure necessarily include a thermoplastic binder or an antifoamer as presumably purported by the Examiner.

(E) Reply: It is acknowledged that use of WR Grace is to show that characteristics not specifically disclosed in Bonaventura are inherent.

Applicants have acknowledged that Bonaventura et al teach the use paints comprising micronized porous silica gels of WR Grace. Regarding the paints of Bonaventura et al comprising a thermoplastic binder or anti-foam agent, the following comments are made. The specification states:

> "A coating typically comprises a material often referred to as a "binder," which is the primary material in a coating capable of film formation." [0297]
> "A thermoplastic binder and/or coating reversibly softens and/or liquefies when heated." [0382]
> "Binders ... often do not convert from solid to liquid ("melt") at a specific temperature ("Tm"), but rather possess a specific glass transition temperature wherein there is an increase in the rate of volume expansion with increasing temperature. [0384]

Thus, the specification teaches that a thermoplastic binder is a primary material capable of film formation and having the characteristic of soften when heated to the glass transition temperature.

As taught by WR Grace, their micronized porous silica gels are capable of film (mat) formation (WR Grace, Syloid Matting Mechanism; enclosed). As is known in the art, silica gels are solid, granular forms of silica made from sodium silicate. As is also known in the art, silica

gels possess glass transition temperatures (reviewed by Deubener et al, 2003). Thus, the silica gels of WR Grace function as thermoplastic binders.

In addition, WR Grace teaches that their micronized porous silica gels are low foaming (WR Grace, Syloid Silicas for Water-borne Coatings; enclosed) and, thus, must comprise anti-foaming properties.

(F) The aforementioned assertions (A)-(C) are substantiated in a declaration by Dr. James W. Rawlins, Ph.D. under 37 C.F.R. § 1.132 filed in conjunction with this response.

(F) Reply: Regarding the instant rejection, points 18-28 and 30 of the declaration by Dr. James W. Rawlins set forth the same arguments as (A)-(E) above. These arguments are not found to be persuasive for the reasons set forth above.

Point 29 of the declaration by Dr. James W. Rawlins provides an argument not provided by Applicants, as follows.

> 29. The teachings of Bonaventura heavily emphasize immobilizing the bioactive species on a polyurethane matrix and then adding the combined polyurethane/bioactive species into a paint, to thus ensure the enzymes can maintain their activity (col 13, lines 20-48, Examples I-V, Claims 1, 14). In fact, Bonaventura et al. specifically teaches that the immobilization is needed for an enzyme to maintain functional activity within a paint, "It was desirable to document that an enzyme could maintain functional activity when mixed with a traditional paint such as a latex-based paint or an enamel (if premixed with a polyurethane polymer) ..." (col 34, lines 43-46). Based on such strongly emphasized teachings, I, as one skilled in the art, would not be inclined to incorporate enzymes within coatings without use of a polyurethane matrix; I would not expect that enzymes would be able to retain activity in a paint without immobilization as taught by Bonaventura.
>
> In this context, the teachings of the instant application are not similar to the teachings of Bonaventura, because the instant application describes direct blending an enzyme with a defined set of materials for use as functional films. This is a critical departure and an unobvious result that surprises those skilled in both the biochemistry art and surface coatings art.

Reply: It is acknowledged that Bonaventura et al teaches that enzymes linked to a polyurethane matrix maintain activity. However, nowhere does Bonaventura et al teaches that

enzymes must be linked to a polyurethane matrix in order to maintain activity or that enzymes not linked to a polyurethane matrix do not maintain activity.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Rejection of Claims 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonaventura et al, 1999 in view of Di Sioudi et al, 1999 and ExPASy E.C.3.1.8 or Piesecki et al, 1993, as explained in the prior action, is maintained.

Rejection of Claims 73, 323, and 324 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonaventura et al, 1999 in view of Sigma, Inc, as explained in the prior action, is maintained.

Rejection of Claims 224-233, 326, and 327 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonaventura et al, 1999 in view of Pusch et al, 1985, as explained in the prior action, is maintained.

Rejection of Claim 309 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Bonaventura et al, 1999 in view of Ye et al, 1999, as explained in the prior action, is maintained

Rejection of Claims 321 and 345-347 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonaventura et al, 1999 in view of Krumhar et al, 1992, as explained in the prior action, is maintained

Rejection of Claims 348-350 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Bonaventura et al, 1999 in view of Yafuso et al, 1991, as explained in the prior action, is maintained

In support of their request that the above rejections be withdrawn, Applicants provide the following arguments. These arguments are not found to be persuasive for the reasons following each argument.

(A) The arguments on pg54 to pg57¶ 1, reiterate some arguments provided above for the rejection of Claims 1, 15-20, 67, 72, 74, 75, 79-89, 94-100, 102, 110-112, 115-117, 123-135, 180-182, 217, 219-223, 234-238, 251-255, 272, 320, 343, 344, 351, 352, 354-356, 360-362, 365-367-373, 376, 377, 379-385, 389-391, 393, and 394 under 35 U.S.C. 102(b) as being anticipated by Bonaventura et al, 1999, as evidenced by W. R. Grace & Co.

(A) Reply: Said arguments are not persuasive for the reasons explained above regarding said rejection under 35 U.S.C. 102(b).

(B) None of DiSioudi, ExPASy, Piesecki, Sigma, Pusch, Miller, Krumhar, or Yafuso teach or suggest incorporating an enzymatically active esterase of EC 3.1.8 into a surface treatment, much less in an elastomer, an adhesive, a sealant, a wax or the coating types recited in independent claims 1, 272, 368, 393 and 394.

(B) Reply: As explained above regarding the rejection of claims under 35 U.S.C. 102(b) as being anticipated by Bonaventura et al (Reply A), it is Bonaventura et al that teaches, at least, an architectural paint comprising an enzymatically active esterase of EC 3.1.8.

None of the pending claims specifically recite an elastomer, an adhesive, a sealant, or a wax.

Allowable Subject Matter

No claims are allowable.

Applicant's amendment necessitated any new grounds of rejection presented in this Office action. Any new references were cited solely to support rejection(s) based on amendment or rebut Applicants' arguments. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Regarding filing an Appeal, Applicants are referred to the Official Gazette Notice published July 12, 2005 describing the Pre-Appeal Brief Review Program.

Final Comments

To insure that each document is properly filed in the electronic file wrapper, it is requested that each of amendments to the specification, amendments to the claims, Applicants' remarks, requests for extension of time, and any other distinct papers be submitted on separate pages.

It is also requested that Applicants identify support, within the original application, for any amendments to the claims and specification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheridan L. Swope whose telephone number is 571-272-0943. The examiner can normally be reached on M-F; 9:30-7 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Mondesi can be reached on 571-272-0956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/SHERIDAN SWOPE/
Primary Examiner, Art Unit 1652